Executive Summary
Interim Report to the Secretary of Transportation:
Categories of Cancellation and Delay for Air Carrier On-Time Reporting

This report has been prepared in direct response to Section 227 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21). Section 227 directs the Secretary of Transportation to modify Part 234 of title 14 Code of Federal Regulations, Airline Service Quality Performance Reporting requirements to "*disclose more fully to the public the nature and source of delays and cancellations experienced by air travelers.*" This requirement was included in AIR-21 due, in part, to increasing frustration by the public over delays and cancellations in air travel. Further, there appears to be a widespread public perception that timely, consistent, and credible information is lacking as to the causes of delays and cancellations when they occur.

Secretary of Transportation Rodney E. Slater initiated efforts in the summer of 2000 to address problems in the national aviation system and to identify ways to provide improved information to the public on delays and cancellations. As part of that effort, in late August, he appointed Associate Deputy Secretary Dr. Stephen D. Van Beek to lead the Air Carrier On-Time Reporting Advisory Committee called for in Section 227 of AIR-21.

The Air Carrier On-Time Reporting Advisory Committee (the Task Force) was convened in late October to specifically address the AIR-21 requirement to identify categories of cancellations and delays which could be reported under a revised 14 CFR Part 234 (Airline Service Quality Performance Reporting). This interim report presents the recommendations of the Task Force and provides the context for the need for consistent, reliable, and credible information that can be made available to the public. The Task Force has reached consensus on nine new categories of cancellations and delays that it recommends carriers report under a revised 14 CFR Part 234. In addition, the Task Force has developed a framework for further analysis of causes of cancellations and delays that it recommends be implemented in collaboration with the U.S. DOT.

NEXT STEPS TO BE ADDED AFTER NOVEMBER 13.

DRAFT

Interim Report to the Secretary of Transportation:
Categories of Cancellation and Delay for Air Carrier On-Time Reporting

This is the interim report of the Air Carrier On-Time Reporting Advisory Committee (the Task Force). The Task Force was established by the Secretary of Transportation as part of the Department's initiative to improve information available to air travelers and other decision makers about the nature and causes of airline flight delays and cancellations.

A. Why the Task Force was Established

Under 14 CFR Part 234, the U.S. Department of Transportation's (DOT) Bureau of Transportation Statistics (BTS) collects and publishes data regarding airline on-time performance. With the data, users can calculate, among other things, daily average flight delay for particular flights and the percentage of an airline's flights delayed, canceled, or diverted. The Federal Aviation Administration (FAA) and the air carriers use the data to better understand gate, tarmac, and airborne delays. The DOT and the air carriers also use the data for performance measurement.

The FAA also collects information on airline flight delays. FAA personnel manually record data for flights that were delayed 15 minutes or more after coming under FAA control.

Section 227 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR–21) requires that BTS's data collection, also called the Part 234 Airline Service Quality Performance Reports, be modified to "*disclose more fully to the public the nature and source of delays and cancellations experienced by air travelers.*" These changes must "*establish categories that reflect the reasons for delays and cancellations experienced by air travelers*", which are to be used in DOT's collection and publication of the Airline Service Quality Performance Report data. The legislation also calls for DOT to establish a task force to develop alternatives and criteria for these modifications. The task force is to include officials from the FAA, representatives of airline consumer organizations, air traffic controllers, and air carriers. The full text Section 227 of AIR-21 is included as Appendix A.

The need for this effort was reinforced by the DOT Office of Inspector General's July 25, 2000, report *Air Carrier Flight Delays and Cancellations*. One of its recommendations was that "*FAA, in coordination with BTS, DOT's Office of Aviation Enforcement and Proceedings, and air carriers, continue development of a common system for tracking delays, cancellations, and associated causes, such as improving [the Aviation System Performance Metrics].*"

The Department's own consumer complaint statistics pointed to the need for action, as well. Those data showed that, during the first six months of this year, complaints about flight problems

(cancellations, delays, misconnections, etc.) comprised over 37 percent of all complaints received, slightly higher than in 1999, but a significant increase over 1998, when such complaints comprised 27 percent of the total. Moreover, in the first six months of 2000, while overall complaints increased 58 percent, the number of complaints about flight problems was 72 percent higher than it was during the first six months of 1999.

In August, the Secretary convened two meetings of aviation industry stakeholders as part of an effort to work cooperatively toward the common goal of improving customer service. The task force called for by AIR-21 fit well within this effort since the task force envisions a collaborative effort and deals with an important customer service issue -- improving the on-time information that is available to consumers. On August 25, 2000 the Secretary directed Associate Deputy Secretary Dr. Stephen D. Van Beek to lead the AIR-21 task force.

This effort complements two other projects announced by DOT on August 25, 2000. The first is a task force that has produced the October 2000 report *Best Practices for Improving the Air Travel Experience*. It identifies air carriers' "best practices" in providing accurate and timely flight information to air travelers from the time they plan a trip until they return home safely. A summary of the report is included as Appendix B. The second is an FAA project to develop and implement a plan to address the capacity problem which has been created, in part, by steadily increasing demand for air travel by the public, particularly during peak periods. The FAA report will be available in December.

B. The Task Force Members

The Task Force members, listed in Table 1 below, were chosen to reflect a balanced cross section of interests likely to be affected by any Departmental action to revise its on-time data collection requirements. In addition to the government, they include representatives from airline consumer groups, air carriers, labor unions, and airport operators. Additionally, the Department hired facilitators to assist the Task Force in its efforts. Meetings were announced in the Federal Register (65 Fed. Reg. 63285) and are open to the public. DOT opened a public docket for submission of comments, docket number OST-2000-8164.

Table 1- Air Carrier On-Time Reporting Task Force

Organization	Primary Representative
Air Carrier Association of America	Ed Faberman
Air Line Pilots Association	Jay Wells
Airports Minority Advisory Council	Linda Moore
Air Tran Airways	Steve Kolski
Air Transport Association	Jim Coon
Air Travelers Association	David Stempler
American Airlines	Russ Chew
American Society of Travel Agents	Paul Ruden
Delta Air Lines	Bill Wangerien
National Air Traffic Controllers Association	Bill Blackmer
National Business Travel Association	Marianne McInerney
Official Airline Guide Worldwide	Ivan Bekkers
Regional Airline Association	Faye Malarkey
Southwest Airlines	Robert Kneisely
United Airlines	Pete McDonald
U.S. Department of Transportation	Stephen Van Beek, Chair

C. The Task Force Goals

The Task Force was chartered as a Federal advisory committee on September 25, 2000, with a mission to "*consider changes to [BTS's] current on-time reporting program so it will provide more information to the public about the nature and sources of delays and cancellations experienced by air travelers.*" The charter identified potential issues for the Task Force to address:

- What categories of delay and cancellation will be beneficial to the government, airlines, and consumers?
- What definitions describe the categories and are technically feasible?
- How should the information be collected -- who will report delay and cancellation information, who will decide what category applies to a particular circumstance?

- When a delay or cancellation has multiple causes, how should this be accounted for?
- How should the system handle the ripple effect, where a delay at one point has downstream effects?
- At what level of detail should information be collected? At what level of detail should it be published or made available over the Internet?

The Task Force was directed to transmit an interim report to the Secretary by November 21, 2000, and authorized to continue its work after that date if doing so would be in the public interest. The full text of the Task Force Charter is included as Appendix C.

The creation of the Task Force is grounded on the premise that it is essential to have appropriate and useful data to help advance the goal of efficient air travel. Two important questions that DOT and other aviation stakeholders are trying to answer are: 1) Why do air travel delays and cancellations occur? and; 2) Where can improvements be made to rectify the problem? The answers require an understanding of the types, amounts, causes and effects of delays and cancellations, and an understanding of the air transportation system. The more we know about flight delays and cancellations-- where, when, and how they have occurred -- the better informed we will be about why they occur and, consequently, about how to reduce delays and cancellations in the future.

To date, the Task Force has held five meetings -- October 25 and 26 and November 1, 2, and 13. The initial task of the group was determining what issues it would address. While the ultimate goal of the Task Force was to reach consensus on all key aspects of proposed rule revisions pertaining to Part 234 Airline Service Quality Performance Reports, there was limited time available given the November 21 deadline for submitting this interim report to the Secretary. Therefore, the group agreed that it would attempt to achieve consensus on each issue, but where it did not do so because of time limitations, the report would identify any areas in which the task force did reach a consensus; provide criteria that it believes should be used in revising the rule; and describe and evaluate the various alternatives for resolving the identified issues. The Task Force would also make recommendations on whether it should continue its deliberations after issuing its interim report.

D. Description of Historical Airline On-Time Performance Data Collection Requirements

Except for a short hiatus between 1984 and 1987, since 1957 airlines have been subject to on-time performance regulations in one form or another. In 1957, the Civil Aeronautics Board (CAB), the DOT's predecessor, adopted "performance standard" regulations requiring carriers to operate each flight within 15 minutes of scheduled elapsed time at least 75 percent of the time. The 15-minute standard was adopted after CAB staff studies showed that it was unrealistic to expect carriers to be able to adhere more precisely to their elapsed flight times as proposed in their schedules, often due

Data Items Reported

Facilities report delays of 15 minutes or more to Instrument Flight Rules (IFR) traffic, which result from the ATC system detaining an aircraft at the gate, short of the runway, on the runway, on a taxiway, and/or in a holding configuration anywhere en route. Air traffic facilities report the following data elements:

- Aircraft Identification (Individual delays only)
- Delay Start Time
- Delay End Time
- Average and Maximum Delay (Group delays only)
- Departure and Arrival Airport
- Delay Type (Departure, Arrival, or En route)
- Aircraft Category (Air Carrier, Air Taxi, General Aviation, or Military)
- Impacting Condition or Cause

Departure delays are incurred on the ground at the departure airport, and can result from conditions at the departure airport, the arrival airport, or en route. *Arrival delays* are incurred when an aircraft is held in the adjacent ARTCC facilities' airspace due to conditions at the arrival airport. *En route delays* are incurred when an aircraft is held in the airspace of an en route ARTCC due to conditions at the adjacent ARTCC. Delays may be entered individually by aircraft identification or grouped by either destination or departure airport and impacting condition.

Impacting Conditions are conditions that cause a reduction in capacity at the airport or in the airspace. The five impacting conditions are Weather, Equipment, Runway/Taxiway, Volume, and Other (e.g., noise abatement, bomb threat, air show).

Publication and Use of the Information

FAA Headquarters, Regional, and air traffic facility personnel analyze OPSNET data to assess trends in system performance and develop ways to improve the performance of the aviation system. Daily reports are provided to the airlines. Additionally, monthly OPSNET reports are released to industry personnel.

5. FAA's Aviation System Performance Metrics (ASPM)

For the past several years, FAA and the aviation industry have been working together to reach consensus on definitions and metrics to measure flight delay and cancellations. In November 1999, the FAA, Air Transport Association, and participating carriers agreed to share data so that a common set of metrics could be computed and be available for analysis on a next-day basis. They agreed that these metrics would be available without any attribution of causality. The FAA, ATA and participating carriers agreed to definitions, methodology, and data sources to compute the aviation system performance metrics.

Coverage

- Airport delay = Actual off time minus (Scheduled gate departure time plus Unimpeded taxi-out time)
- Airborne delay = Actual airborne time minus Carrier submitted en route time
- Taxi-in delay = Actual taxi-in time minus Unimpeded taxi-in time
- Block delay = Actual gate to gate time minus Scheduled gate to gate time
- Arrival delay = Actual gate arrival time minus Scheduled gate arrival time

The full ASPM data set is shown in Table 3.

Publication and Use of the Information

ASPM is still in development and as such, access is limited to participating carriers, airports, and FAA. The data are available on the Internet each day by 7:00 AM; access is controlled by username and password. Individual air carriers have access to the their own data and to summary data. Currently, ASPM has data from January 1, 2000 to the present. In late summer 2001, historical data from January 1, 1997, will be added to ASPM and the Consolidated Operations and Analysis System (CODAS) will be replaced by ASPM.

Table 3- Aviation System Performance Metrics (ASPM)Data Set

Flight Information	Carrier Flight Number Equipment type Departure airport Arrival airport Schedule departure date
Departure Information	Scheduled gate out Actual gate out Scheduled wheels off Actual wheels off Estimated Departure Clearance Time (EDCT) Host computer DZ time Gate delay Unimpeded taxi-out time Taxi-out delay Airport delay
Arrival Information	Scheduled gate in Actual gate in Scheduled block minutes Actual block minutes Actual wheels on Host computer AZ time Estimated time en route Estimated time en route Actual airborne time Airborne delay Taxi-in time Unimpeded taxi-in time Taxi-in delay Block delay Arrival delay

E. Challenges and Criteria for Modifications in Reporting

The Task Force notes that causes of flight delays and cancellations have been notoriously difficult to codify in a meaningful way. Determining cause of flight delays and cancellations is particularly challenging given the complexity of the airspace system and the interrelationships of multiple variables that contribute to delays. Air carrier data systems often use a "laundry list" of possible causes -- such as weather, maintenance, and operations control -- though these often do not give enough information to provide insights as to why the delay occurred or how it could have been avoided. Further, there is not consistency in the data collected by individual airlines. A delay may have multiple causes, contributing factors, or may be due to the rub-off effect or result from an earlier event (e.g., an aircraft could be out of position due to a delay earlier in the day, thus resulting in delays on subsequent flights). Determining what category or

categories apply in a particular circumstance can therefore be problematic. Another challenge is that while airlines currently report delay information to BTS, they do not always know the *cause(s)* of certain types of delay, such as an Air Traffic Control hold on a flight due to heavy volume on a runway. Moreover, assigning a cause to a delay is sometimes seen as drawing a conclusion as to who is to blame for the delay; a conclusion that might be subjective and disputed. Finally, data currently reported do not provide enough information for meaningful input to isolate the causes of delay or to identify potential remedies to systemic problems under the collective control of the airlines, airports, and the FAA.

These challenges formed the backdrop against which the Task Force worked toward meeting its goals (see Section C). During its discussions, several recurring general principles emerged. The Task Force recommends these serve as criteria to be used in designing new data collection requirements and evaluating the proposed options. The criteria are:

(1) The changes in reporting requirements must balance the benefits of improved information with the burden placed on reporting carriers.

(2) The changes must take into account and build upon the air carriers' current data collection systems when possible.

(3) The changes must take into account possible unintended consequences and the fact that what gets reported could change the behavior of carriers (e.g., requirements could provide incentives for carriers to increase scheduled flight times).

(4) The data must be reported/collected consistently, using standardized protocols and definitions that minimize subjectivity. This is necessary to ensure that the public has confidence in the data reliability, that information available to the public is credible, and that systemic assessments may be conducted.

(5) The data must be useful. The two main uses of data are aiding consumer decisions in travel planning and aiding industry and government decisions pertaining to infrastructure investments, policies, planning, operations, and management. Collecting data that meets the needs of all aviation stakeholders will not be easy.

(6) The data collection system must help to minimize confusion regarding the causes of delays. This has implications both for the way the data are collected and how they are reported.

(7) Delays are based on a comparison of actual times to scheduled times. While air carriers must be able to create realistic schedules, doing so has the potential to obscure delays. Therefore a mechanism must be developed to understand changes in the flight times themselves.

F. Discussion of Issues and Recommendations

Scope of Part 234 Requirements/Reporting Carriers

Current Requirement:

Under Part 234 -"Airline Service Quality Performance Reports", reporting carriers refers to those U.S. air carriers certificated under section 41102 of Title 49 U.S.C. that accounted for at least 1 percent of domestic scheduled-passenger revenues in the 12 months ending March 31 of each year.

Discussion and Recommendation:

The Task Force received Traffic Enplanement data for the 12 months ending December 1999 from BTS (See Appendix D). This information showed that the ten carriers currently reporting Part 234 information accounted for 84.56% of domestic passenger enplanements[5] reported during 1999. The data also showed that, in 1999, the reporting carriers' code share partners[6] accounted for an additional 10.51%[7] of the enplanements and the other major and national carriers accounted for 3.68% of the enplanements. Smaller carriers (approximately 80) accounted for the remaining1.24% of enplanements during 1999.

The Task Force discussed the advantages and disadvantages of expanding the applicability of Part 234 to additional carriers. Advantages include more complete information to consumers on code share segments of trips that are flown on the ten currently reporting carriers and their code share partners. Disadvantages include the relatively small proportion of enplanements by the currently non-reporting carriers. The Regional Airline Association was invited to provide information to the Task Force on the estimated burden of expanding Part 234 requirements to its member carriers. The Task Force also discussed the high proportion of enplanements already being reported and the need to assess the cost/benefit trade-off of requiring additional carriers to report.

Based on its review and discussion of the data BTS provided, the Task Force recommends the following:

1) The burden of reporting needs to be assessed prior to changing the scope of Part 234 requirements to include additional carriers. In considering changes to the definition of a reporting carrier, the criteria should include at least: a) the cost of collecting and reporting data for currently non-reporting carriers, b) the impact the delay from a class of carriers would have on the aviation system, c) the impact the delay from a class of carriers would have on passengers (e.g., advantages and disadvantages of having all flight segments reported including code share segments), and d) the class of carriers revenues and total enplanements.

2) Contingent upon an assessment of the burden of reporting as discussed above and a cost/benefit analysis, the Task Force recommends expanding the reporting requirements to include Reporting Carriers Code Share Partners and Other Major and National Air Carriers, as listed in the enplanement data provided.

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[5]Domestic enplanements include all enplanements for scheduled service operations between two U.S. points.

[6]***Define code share partners here***

[7]Includes both code share and non-code share flights.

3) The Task Force recommends that Smaller Carriers not be required to report Part 234 information given that they accounted for only 1.24 % of enplanements in 1999.

Reportable Flights

Current Requirement:

Under Part 234, carriers must report on-time performance data for any nonstop flight, including a mechanically delayed flight, to or from any qualifying airport. A qualifying airport is any airport within the contiguous 48 states that accounted for at least 1 percent of domestic scheduled-passenger enplanements in the previous calendar year.

Discussion and Recommendation:

The Task Force discussed two issues related to qualifying airports. The first proposal was whether the list of qualifying airports should be drawn from those airports in all 50 states, not just the contiguous 48. This proposal was rejected. The Task Force noted that for both consumer information purposes and asset management purposes, the limited value of the data that would be gained by expanding the reporting requirement to all 50 states might not outweigh the cost and burden of data collection for these flights. The unique nature of the aviation industry in Alaska and Hawaii and the relatively low share of commercial air traffic compared to general aviation does not warrant expanding reporting for airports in those states.

The second proposal was whether carriers should report on all flights within the 48 contiguous states, rather than just those to and from qualifying airports in those states. Since carriers have always voluntarily reported all flights within the 48 contiguous states, the Task Force recommends that the definition of reportable flights be changed to any nonstop flight, including a mechanically delayed flight, to, from, or within the 48 contiguous states.

Frequency of Reporting

Current Requirement:

Part 234 currently requires airlines to report on-time performance information on a monthly basis and to file their reports for the previous month no later than the 15th day of the next month.

Discussion and Recommendation:

The Task Force discussed various options concerning frequency of reporting. The current requirements result in information being made available to the public within 40 days after the end of each reporting month. There was also discussion about the need for more real time information for consumers which will be addressed later in this report. The Task Force recommends that the airlines continue to be required to report on a monthly basis with data due to BTS for the previous month no later than the 15th day of the following month.

G. New Categories for Reporting Cancellations and Delays

As noted earlier in this report, Part 234 does not currently require reporting of information related to the *causes* of cancellations or delays. Remedying this deficiency is the principal purpose of modifying the current reporting requirements and is intended "*to disclose more fully to the public the nature and source of delays and cancellations experienced by air travelers*[8]." In addition to the requirement that the Secretary of Transportation modify the Part 234 reporting requirements, Section 227 of AIR-21 states:

> "*In making modifications under subsection (a), the Secretary shall (1) establish categories that reflect the reasons for delays and cancellations experienced by air travelers; (2) require air carriers to use such categories in submitting information to be included in airline service quality performance reports; and (3) use such categories in reports to the Department of Transportation on information received in airline service quality performance reports.*"

Reporting on Cancellations and Delays

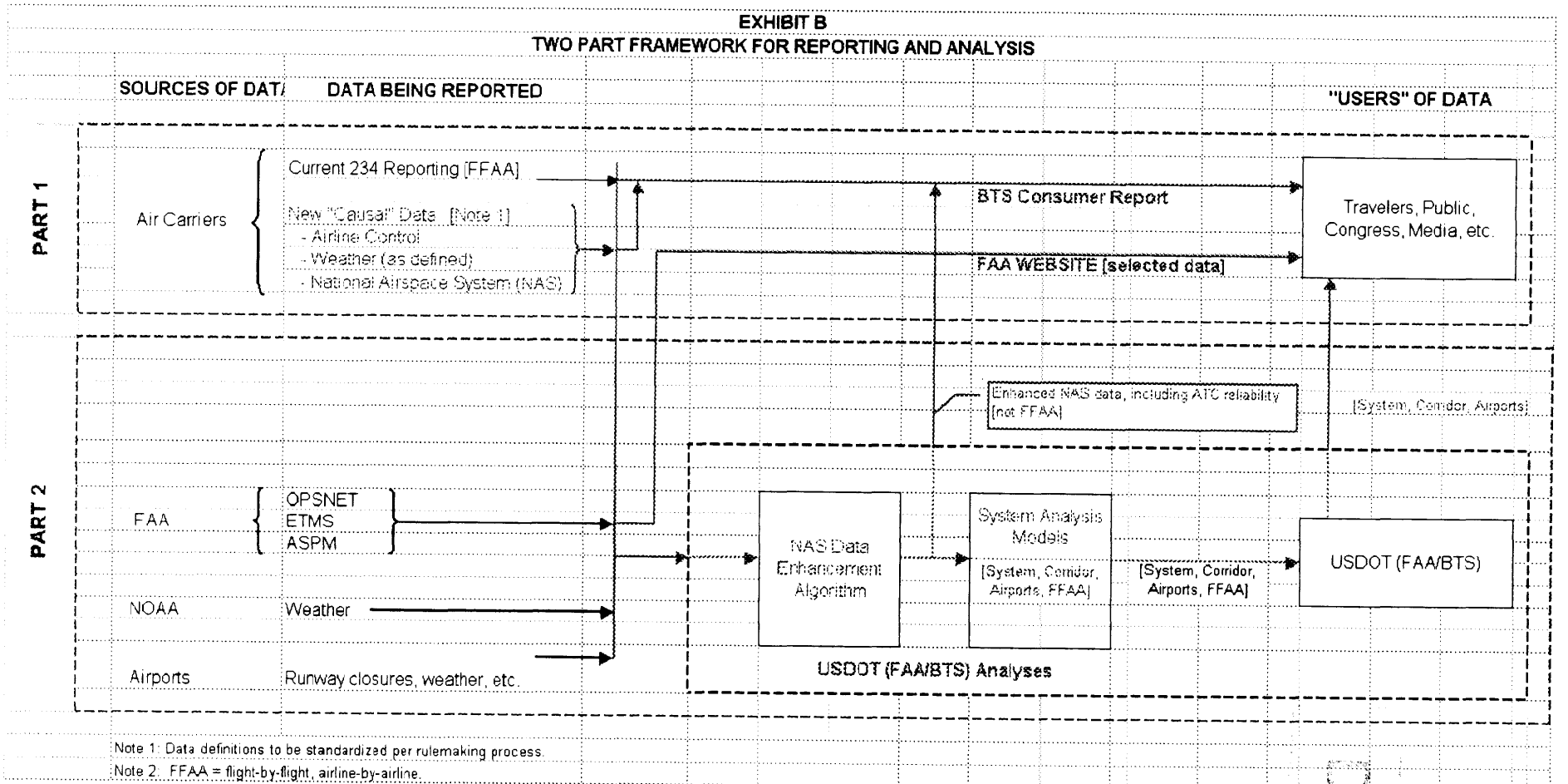
Discussion and Recommendation:

A framework for reporting and analyzing flight cancellations and delays was developed, and is shown in Exhibit B. Part 1 of the framework addresses the specific mission of the Task Force as relates to Part 234 reporting requirements. Part 2 of the framework addresses analytical requirements for information and data *in addition* to that which the airlines provide (e.g. FAA data, airport data, weather data). The Task Force agreed that this two-part approach to reporting and subsequent analysis would be the best way to approach analysis and produce results that will be useful for both consumer reporting and asset management purposes. Given the time constraints on the Task Force effort, it was agreed that the first priority would be to focus on the Part 1 requirements and development of new categories of reporting for cancellations and delays. In addition, the Task Force would like to be involved, along with the U.S. DOT (e.g., OST, FAA, BTS), in developing the analytical approach used in Part 2 of the framework.

[8]Public Law xxxxx. Section 227 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR–21).

EXHIBIT B

TWO PART FRAMEWORK FOR REPORTING AND ANALYSIS



Categories of Flight Cancellations

The Task Force recommends that flight cancellations be reported in three broad categories:

1) cancellations due to circumstances within airline control (e.g., crew, maintenance);

2) cancellations due to weather *(e.g., significant meteorological conditions (actual or forecasted) at the point of departure, en route, or point of arrival that, in the prudent judgment of the air carrier: a) prevents operation of that flight, and/or, b) prevents operation of a subsequent flight(s) due to the intended aircraft being out of position as a result of a prior cancellation attributable to weather. NEED TO DISCUSS THIS DEFINITION)*

3) cancellations due to circumstances within the National Airspace System (NAS)[9].

The Task Force recommends that it continue to work collaboratively with the U.S. DOT (OST, BTS, FAA) so that NAS-related cancellations can be further analyzed to identify systemic problems and to improve the ability of all partners in the aviation system (e.g. FAA, airports, airlines, etc.) to improve asset management and investment decisions. With respect to categorizing the cancellations due to NAS, the FAA indicated that it can refine the NAS data and identify ATC reliability as a NAS subcategory of cancellations and delays.

Categories of Flight Delays

Discussion and Recommendation:

The Task Force recommends that the DOT consider amending Part 234 to include reporting requirements for categories of delay as follows:

- Reporting should be required only if a flight arrives at the gate 15 minutes or more after its scheduled arrival time at the gate.

- The following six categories of delay would be reported:

  1) Delay due to circumstances within the airline control
  2) Delay due to weather (as defined in the cancellation section above)
  3) Delay due to circumstances within the National Airspace System
  4) Rub-off[10] or resultant delay due to circumstances within the airline control
  5) Rub-off or resultant delay due to weather (as defined in the cancellation section above)

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[9]The term National Airspace System is used to refer to runway closures, volume constraints, air traffic control, FAA equipment, weather that reduces capacity, and other system issues.

[10]***Define Rub-off here***

6) Rub-off or resultant delay due to circumstances within the National Airspace System

The Task Force recommends that the FAA use information available through its data systems to further analyze delays due to the NAS and, in particular, to identify delays within the two NAS categories (3 and 6 above) that are due to Air Traffic Control System reliability. While this cannot be done on a flight-by-flight, airline-by-airline basis, the FAA can provide this information based on time blocks during the day such as between 6 and 10 a.m., 10 a.m. to 2 p.m., etc.

Categories of Arrival Delays (TO BE ADDRESSED AT NOV 13 MEETING)

Other Issues Considered by the Task Force

Real Time Information (TO BE ADDRESSED AT NOV 13 MEETING)

Unintended Effects of Rule Changes (TO BE ADDRESSED AT NOV 13 MEETING)

Diversions of Flights (TO BE ADDRESSED AT NOV 13 MEETING)

Definitions

H. Next Steps

[This will be written after the November 13 meeting and will address: whether this task force will continue; if so, will the charter, chair, and members be the same; if not, what process will take its place]

I. Appendices

- Appendix A- Part 227
- Appendix B- Best Practices Report Summary
- Appendix C- Charter of the Advisory Committee
- Appendix D- Enplanement Data